

Claims

1. A lifter suitable for mounting on the underside of a refuse collection hopper of a refuse collection vehicle for dumping refuse collection containers into the refuse collection hopper, the lifter comprising:

a lifter support movable between a first position below the hopper and a second position spaced from the first position;

a lifter carriage carried by the lifter support and pivotally movable between a retracted position and an extended position for lifting and inverting refuse collection containers to dump the refuse into the collection hopper;

a power source operatively connected to the lifter support and lifter carriage to move the lifter support between the first and second positions and the lifter carriage between a retracted and extended positions.

2. The lifter of claim 1 in which the power source is operatively secured to the lifter support and lifter carriage so as to move them at least in part sequentially.

3. The lifter of claim 2 further comprising a linkage assembly pivotally connected to the lifter carriage and lifter support, and the power source being secured to the linkage assembly.

4. The lifter of claim 1 wherein the power source is hydraulically activated.

5. The lifter of claim 4 wherein the power source comprises a piston-cylinder unit.

6. The lifter of claim 5 in which the hydraulic piston-cylinder unit is telescopic.

7. The lifter of claim 1 further comprising a first link having first and second ends, the first end being pivotally mounted to the lifter support; a second link having first and second ends, the first end being pivotally mounted to the lifter carriage; the second ends of the first and second links being pivotally secured together, the power source being operatively coupled to the first and second links.

8. The lifter of claim 7 wherein the power source comprises a linearly movable actuator and the actuator is pivotally secured to selected of the links.

9. The lifter of claim 8 further comprising a connecting rod extending between and pivotally connecting the second ends of the links along a common axis, and wherein the actuator is secured to the connecting rod.

10. The lifter of claim 8 wherein the actuator is pivotally secured to the first link.

11. The lifter of claim 1 further comprising a lock for retaining the lifter support in the second position, the lock being releasable upon movement of the lifter carriage to the retracted position.

12. The lifter of claim 1 further comprising a slide track for attachment to the underside of the collection hopper, the lifter support being slidably movable within the slide track.

13. The lifter of claim 1 wherein the lifter carriage includes a relatively movable upper hook and a lower hook, the hooks being movable between a first spaced apart position when the lifter carriage is in the retracted position and a second spaced apart position when the carriage is in the extended position, the hooks being spaced apart a greater distance in the second position than in the first position.

14. A refuse collection vehicle comprising a refuse collection hopper including a lower sill edge and bottom floor.

a lifter mounted on the underside of the floor, the lifter comprising:

a lifter support movable between a first position below the hopper floor and a second position spaced from the first position and closer to the sill edge;

a lifter carriage carried by the lifter support and pivotally movable between retracted position and an extended position for

lifting and inverting refuse collection containers to dump the refuse into the collection hopper;

a power source operatively connected to the lifter support and lifter carriage to move the lifter support between the first and second positions and the lifter carriage between a retracted and extended positions.

15. The lifter of claim 14 in which the power source is operatively secured to the lifter support and lifter carriage so as to move them at least in part sequentially.

16. The lifter of claim 15 further comprising a linkage assembly pivotally connected to the lifter carriage and lifter support, and the power source being secured to the linkage assembly.

17. The lifter of claim 14 wherein the power source is hydraulically activated.

18. The lifter of claim 17 wherein the power source comprises a piston-cylinder unit.

19. The lifter of claim 18 in which the hydraulic piston-cylinder unit is telescopic.

20. The lifter of claim 14 further comprising a first link having first and second ends, the first end being pivotally mounted to the lifter support; a second link having first and second ends, the first end being pivotally mounted to the lifter carriage; the

second ends of the first and second links being pivotally secured together, the power source being operatively coupled to the first and second links.

21. The lifter of claim 20 wherein the power source comprises a linearly movable actuator and the actuator is pivotally secured to selected of the links.

22. The lifter of claim 21 further comprising a connecting rod extending between and pivotally connecting the second ends of the links along a common axis, and wherein the actuator is secured to the connecting rod.

23. The lifter of claim 21 wherein the actuator is pivotally secured to the first link.

24. The lifter of claim 14 further comprising a lock for retaining the lifter support in the second position, the lock being releasable upon movement of the lifter carriage to the retracted position.

25. The lifter of claim 14 further comprising a slide track for attachment to the underside of the collection hopper, the lifter support being slidably movable within the slide track.

26. The lifter of claim 14 wherein the lifter carriage includes a relatively movable upper hook and a lower hook, the hooks being movable between a first spaced apart position when the lifter carriage is in the retracted position and a second spaced

apart position when the carriage is in the extended position, the hooks being spaced apart a greater distance in the second position than in the first position.

27. The lifter of claim 18 in which the piston-cylinder unit is mounted to allow angular movement of the unit.

28. The lifter of claim 27 in which the piston-cylinder unit is trunnion mounted.